

(c) a plunger axially movable in said barrel between positions axially spaced from said adapter and engaging said adapter, said plunger having first and second opposite ends; and

(d) adapter engagement structure disposed at said first end of the plunger and engageable with a mating connection engagement structure on the adapter, said structures having respective drive and connective engagement surfaces, said drive surfaces of each said adapter engagement structure and said mating connection engagement structure extending radially and being spaced circumferentially from one another about the axis of said barrel, said circumferentially spaced drive surfaces of said adapter engagement structure engaging respective circumferentially spaced drive surfaces of said mating connection engagement structure in response to relative rotation of said plunger and said adapter when said plunger lies in said adapter engaged position, said drive surfaces being jointly movable to enable rotation of the adapter relative to the barrel in response to relative rotation of the plunger and barrel to cause the adapter to part from the distal end of the barrel, said connective surfaces (i) lying in axial opposition to and engaged with one another when said plunger lies in said adapter engaged position to connect the plunger and adapter one with the other and (ii) enabling said adapter, when parted from the end of the barrel in response to joint rotation of said adapter and said plunger relative to said barrel, to be withdrawn with the needle into the interior of the barrel in response to joint axial movement of said plunger and said adapter in a direction away from the distal end of the barrel.

78 19. A syringe according to Claim 18 wherein said plunger includes rupturable structure intermediate said first and second ends thereof for detachably connecting said first

and second ends relative to one another whereby said second end can be detached from said first end when said adapter and needle are withdrawn into the interior of the barrel.

20. A syringe according to Claim 18 wherein said second end of said plunger has structure for connecting said plunger second end with structure adjacent the distal end of the barrel, rupturable structure intermediate said first and second ends of said plunger for detachably connecting said first and second ends of said plunger, whereby said second end of said plunger can be detached from said first end when said adapter and needle are withdrawn into the interior of the barrel, leaving said first end in said barrel, said second end being attachable to said structure at the distal end of the barrel.

21. A syringe according to Claim 18 including an alignment surface carried by said plunger and cooperable with another alignment surface of said syringe to orient said plunger relative to said adapter so that said drive surfaces carried by the plunger lie in circumferential registration with the drive surfaces of said adapter when said plunger is moved into its axially distal-most engaged position relative to said adapter.

22. A syringe according to Claim 18 wherein said adapter engagement and connection engagement structures on said plunger and adapter, respectively, include alignment surfaces engageable with one another in response to axial movement of said plunger toward said adapter causing orientation of said plunger and said adapter relative to one another to enable said drive surfaces to lie in circumferential opposition to one another.

23. A syringe according to Claim 22 wherein said alignment surfaces are inclined to the axis of the barrel and engage one another in response to axial movement of the plunger

toward the adapter to cause relative rotation between said plunger and said adapter to bring said drive surfaces into engagement with one another.

12/24. A syringe according to Claim 22¹⁰ wherein said second end of said plunger has structure for connecting said plunger second end with structure adjacent the distal end of the barrel, rupturable structure intermediate said first and second ends of said plunger for detachably connecting said first and second ends of said plunger, whereby said second end of said plunger can be detached from said first end when said adapter and needle are withdrawn into the interior of the barrel, leaving said first end in said barrel, said second end being attachable to said structure at the distal end of the barrel.

13/25. A syringe according to Claim 18⁶ wherein said connective surfaces include a radial extending projection carried by one of said plunger and said adapter and a recess carried by another of said plunger and said adapter for receiving said projection.

14/26. A syringe according to Claim 18⁶ wherein said connective surfaces include a pair of circumferentially spaced radially extending projections carried by one of said plunger and said adapter and grooves carried by another of said plunger and said adapter for receiving said projections.

15/27. A syringe according to Claim 18⁶ wherein said connective surfaces include a radial extending projection carried by one of said plunger and said adapter and a groove carried by another of said plunger and said adapter for receiving said projection in response to relative rotation of said plunger and said adapter.

16/28. A syringe according to Claim 18⁶ wherein said connective surfaces include a pair of radial extending projections carried by said plunger and a pair of grooves carried by said